CHARGE NUMBER: 0307
PROJECT TITLE: Measurements Development
PROJECT LEADER: D. R. Fox
PERIOD COVERED: October, 1985
DATE OF REPORT: November 6, 1985

I. Mathematical Modelling

Objective:

To maintain the tobacco models for filling power and cigarette firmness by incorporating new materials and measurement methods, conducting related studies of physical properties, and providing predictions based on the models.

Status:

A simpler model expression for the firmness-density index model is currently being evaluated. The current model, a third order polynomial of hardness (a transform of firmness) and density index, is very unwieldy in practice. By restricting our data set to values in the normal operating range of the firmness instrument (excluding very soft cigarettes), a model of log firmness vs. density index fits the data quite well.

Some user interface macros were added to the spreadsheet version of the modelling system. However, since Lotus has announced new versions of Symphony and 1-2-3 that will be compatible with each other, further work is being delayed until the new versions arrive.

Plans:

Upon review of the results with the new firmness model, a decision will be made whether to convert to the new form. Additional user interface routines will be written for the spreadsheet program upon receipt of the new software from CAD.

II. Moisture Measurement

Objective:

To evaluate new or improved methods for the measurement of moisture in filler and cigarettes.

2001116457

Status:

Reconditioning was completed on the OV oven from the BL plant. After replacing the wet insulation and the door gaskets, temperature uniformity improved considerably. However, because we could not reach the wet insulation at the front of the oven, some front-to-back temperature and OV variation remained. Tests showed, however, no significant difference between the oven and the other two ovens in the lab and no shelf-to-shelf difference.

The oven is being returned to the BL plant, and a memo summarizing the work is being written.

Source: https://www.industrydocuments.ucsf.edu/docs/xhgm0000

Adjustment of the MEF ovens to equalize the air velocities has begun. It is hoped that this will reduce the oven-to-oven variation seen on monitor samples. An earlier test had shown considerable differences in air velocities that correlated with the OV differences.

A new oven from American Scientific is being evaluated. The design is a considerable improvement over the Precision ovens in that the air path is more uniform and there is a variable speed drive on the fan to regulate air velocity. Measurements of air velocity showed extremely good uniformity across the oven. However, the first OV results were somewhat disappointing, as the middle of the 3 shelves had significantly higher OV's. Temperature and velocity measurements indicate no reason for the difference, so the test will be repeated. One problem is that the oven is very large, taking over 200 OV cans. We have ordered additional dessicators to handle the testing load.

Plans:

Testing of the American Scientific oven will resume when the dessicators are received. The MEF ovens will be evaluated with monitors upon completion of the air flow adjustments.

III. Materials Evaluation Facility

Objective:

To provide physical testing services (CV, OV, firmness, loose ends, etc.) to groups inside and outside R&D.

Status:

A job order request was submitted for the new RH-temperature control equipment for the laboratory. A system from Honeywell has been selected that will permit averaging multiple RH sensors, calibration of sensors, and logging of room and utility conditions.

Work has started on the programming for the computer to interface with the new FTR compacimeters. Frank McKenney, a local computer consultant, will be doing the coding. This system is expected to be operational early next year.

Final details are being resolved for the construction of a new weight selector to be designed and constructed by Development Engineering. The new instrument is badly needed to relieve the increasing demand on weight selection.

Plans:

Work will begin on the Honeywell RH system and the weight selector upon approval of funding.

20011164458

Source: https://www.industrydocuments.ucsf.edu/docs/xhgm0000